APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
KRISHNAN, VIVEK V

ART UNIT	PAPER NUMBER
4121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/792,254	STEEVES, DAVID JOHN
	Examiner	Art Unit
	Vivek Krishnan	4121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *September 27, 2004*.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This is a Non-Final Office Action Correspondence in response to U.S. Application No.

10/792254 filed on March 3, 2004. Claims 1-31 are pending.

Specification

1.   The title of the invention is not descriptive. A new title is required that is clearly

indicative of the invention to which the claims are directed.

2.   The disclosure is objected to because of the following informalities:

        35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear,

concise, and exact terms." The specification is replete with terms which are not clear, concise

and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112,

first paragraph. Examples of some unclear, inexact or verbose terms used in the specification

are:

        Paragraph 14 under the Summary of Invention begins, "The network", but does not

complete the statement.

Appropriate correction is required.

Claim Objections

3.   Claims 1, 9, 17, and 25 are objected to because of the following informalities:

        Claims 1, 9, 17, and 25 each recite the limitation **"the range of addresses"**. However, no

"range of addresses" is introduced in each of claims 1, 9, 17, and 25 prior to this limitation.

There is insufficient antecedent basis for this limitation in the claim.

Claims 1, 9, 17, and 25 each recite the limitation **"one to one mapping of the address**

from the first set". This limitation should be corrected to read **"one to one mapping of the**

***addresses* from the first set"**.

Claim 25 recites the limitation **"the another element"**. However, no "another element"

is introduced in claim 25 prior to this limitation. There is insufficient antecedent basis for this

limitation in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1, 2, 4-10, 12-18, and 20-24 are rejected under 35 U.S.C. 102(b) as being

anticipated by Warhol Worms: The Potential for Very Fast Internet Plagues published on

February 13, 2002 by Weaver (denoted herein as "Weaver").

6.   As for claims 1, 9, and 17, Weaver discloses **a method (system | computer readable**

medium bearing computer readable instructions) for propagating data over a network,

comprising:

determining (a memory device in communication with the processor and storing |

instructions for) a sequential first set of network addresses (Weaver; New Infection

Strategies, discloses determining a sequential first set of network addresses);

(a set of computer readable instruction stored on a memory device that is in

communication with the processor for carrying out a | instructions for) mapping the range

of addresses to a second set of addresses wherein the second set of addresses is a one to one

mapping of the address from the first set and wherein the addresses in the second set are

not in increasing address order (Weaver; New Infection Strategies, discloses a one to one

mapping of the first set of addresses to a second set of addresses by generating a permutation of

the first set of addresses);

(a set of computer readable instruction stored on a memory device that is in

communication with the processor for carrying out a | instructions for) traversing the

second set of addresses to find another element of the network (Weaver; New Infection

Strategies, discloses traversing the permutation, or second set, of addresses to find another

element of the network);

(a set of computer readable instruction stored on a memory device that is in

communication with the processor for carrying out a | instructions for) transferring the

data to the another element of the network and with an indication of at least a portion of

the addresses remaining in the second set (Weaver; New Infection Strategies, discloses

transferring the data and a portion of the addresses remaining in the second set to another

element of the network).

7.   As for claims 2, 10, and 18, Weaver discloses each and every limitation of claims 1, 9,

and 17. Weaver further discloses **the mapping is a function based on a primitive element**

(Weaver; New Infection Strategies, discloses the permutation is based on a preselected key).

8.   As for claims 4, 12, and 20, Weaver discloses each and every limitation of claims 1, 9,

and 17. Weaver further discloses **the indication of the at least a portion of the addresses**

remaining comprises a function used to perform that mapping (Weaver; New Infection

Strategies, discloses the indication includes the permutation scan algorithm applied by each

worm).

9.   As for claims 5, 13, and 21, Weaver discloses each and every limitation of claims 1, 9,

and 17. Weaver further discloses **the network comprises Internet Protocol addresses**

(Weaver; New Infection Strategies, discloses the network comprising IP addresses).

10.   As for claims 6, 14, and 22, Weaver discloses each and every limitation of claims 5, 13,

and 21. Weaver further discloses **the network is coupled to the Internet** (Weaver; New

Infection Strategies, discloses the network is coupled to the Internet).

11.   As for claims 7, 15, and 23, Weaver discloses each and every limitation of claims 5, 13,

and 21. Weaver further discloses **the network comprises a subnet** (Weaver; New Infection

Strategies, discloses the network comprises a subnet).

12.   As for claims 8, 16, and 24, Weaver discloses each and every limitation of claims 1, 9,

and 17. Weaver further discloses **the element of the computer network comprises a**

computing device (Weaver; New Infection Strategies, discloses the element of the network is a

computing device).

Claim Rejections - 35 USC § 103

13.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

14.   Claims 3, 11, 19, and 25-31 are rejected under 35 U.S.C. 103(a) as being unpatentable

over Weaver and in further view of <u>Simulating and Optimizing Worm Propagation Algorithms</u>

published on September 29, 2003 by Vogt (denoted herein as "Vogt").

15.   As for claims 3, 11, and 19, Weaver discloses each and every limitation of claims 1, 9,

and 17. Weaver does not explicitly disclose, but Vogt discloses **(a set of computer readable**

instructions in communication with a memory device for carrying out a | instructions for)

traversing the second set of addresses to find a second element of the computer network

and transferring the data to the second element of the computer network and an indication

of at least a second portion of the addresses remaining in the second set that have not been

traversed (Vogt; 4.4 Subdividing, discloses traversing a set of addresses to find a second

element of the computer network and transferring the data to the second element with an

indication of a second portion of the addresses remaining in the set that have not been traversed).

It would have been obvious to one of ordinary skill in the art at the time the invention

was made to modify, traversing a set of addresses to find an element and transferring to the

element data with an indication of a portion of addresses in the set, as disclosed by Weaver, to

include finding and transferring data with a second portion of addresses remaining in the set that

have not been traversed to another element, as disclosed by Vogt.

One of ordinary skill in the art at the time the invention was made would have been

motivated to make this combination in order to provide a more efficient method of propagating

software over an address space (Vogt; 4.4 Subdividing).

16.   As for claim 25, Weaver discloses:

(a) determining a sequential first set of network addresses (Weaver; New Infection

Strategies, discloses determining a sequential first set of network addresses)**;**

(b) mapping the range of addresses to a second set of addresses wherein the second set of

addresses is a one to one mapping of the address from the first set and wherein the

addresses in the second set are not in increasing address order (Weaver; New Infection

Strategies, discloses a one to one mapping of the first set of addresses to a second set of

addresses by generating a permutation of the first set of addresses)**;**

(d) transferring a set of computer readable instructions to another element of the network

to carry out a distributed computing function (Weaver; Abstract and New Infection

Strategies, discloses the worm, which comprises self executing instructions, propagating through

address space by transferring copies of itself to other elements of the network)**; and**

(e) transferring an indication of at least a portion of the addresses remaining in the second

set along with a set of computer-readable instructions for carrying out acts (a) through (d)

[excluding (c)] (Weaver; Abstract and New Infection Strategies, discloses the worm, which

comprises self executing instructions, propagating through address space by transferring copies

of itself to other elements of the network with an indication of a portion of addresses remaining in the permutation, or second set, of addresses).

Weaver does not explicitly disclose, but Vogt discloses:

(c) traversing the second set of addresses to at least two other elements of the network (Vogt; 4.4 Subdividing, discloses traversing a set of addresses for two elements of a network);

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify, traversing a set of addresses to find an element and transferring to the element data with an indication of a portion of addresses in the set, as disclosed by Weaver, to include traversing a set of addresses to find two elements and transferring to the elements data with an indication of a portion of addresses in the set, as disclosed by Vogt.

One of ordinary skill in the art at the time the invention was made would have been motivated to make this combination in order to provide a more efficient method of propagating software over an address space (Vogt; 4.4 Subdividing).

17.   As for claim 26, Weaver and Vogt in combination disclose each and every limitation of claim 25. Weaver further discloses **the mapping is a function based on a primitive element -** (Weaver; New Infection Strategies, discloses the permutation is based on a preselected key).

18.   As for claim 27, Weaver and Vogt in combination disclose each and every limitation of claim 25. Weaver further discloses **the indication of the at least a portion of the addresses remaining comprises a function used to perform that mapping** (Weaver; New Infection Strategies, discloses the indication includes the permutation scan algorithm applied by each worm).

19.   As for claim 28, Weaver and Vogt in combination disclose each and every limitation of

claim 25. Weaver further discloses **the network comprises Internet Protocol addresses**

(Weaver; New Infection Strategies, discloses the network comprising IP addresses).

20.   As for claim 29, Weaver and Vogt in combination disclose each and every limitation of

claim 26.   Weaver further discloses **the network is coupled to the Internet** (Weaver; New

Infection Strategies, discloses the network is coupled to the Internet).

21.   As for claim 30, Weaver and Vogt in combination disclose each and every limitation of

claim 26.   Weaver further discloses **the network comprises a subnet** (Weaver; New Infection

Strategies, discloses the network comprises a subnet).

22.   As for claim 31, Weaver and Vogt in combination disclose each and every limitation of

claim 25. Weaver further discloses **the element of the computer network comprises a**

computing device (Weaver; New Infection Strategies, discloses the element of the network is a

computing device).

Conclusion

23.   The pertinent art made of record and not relied upon is considered pertinent to applicant's

disclosure.

Weaver et al. A Taxonomy of Computer Worms. October 27, 2003.

Staniford et al. Top Speed of Flash Worms. October 29, 2004.

Ma et al. Self-Stopping Worms. November 11, 2005.

Salomon, David. <u>Foundations of Computer Security – Worms</u>. March 20, 2006. Springer London.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VIVEK KRISHNAN whose telephone number is (571)270-5009. The examiner can normally be reached on Monday through Friday from 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Taghi Arani can be reached on (571) 272-3787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

VK

/Taghi T. Arani/

Supervisory Patent Examiner, Art Unit 4121   12/13/2004